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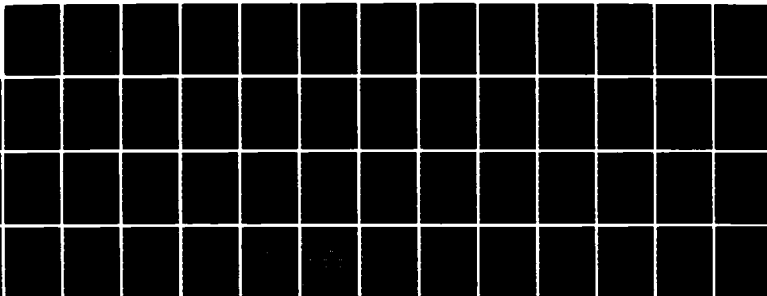
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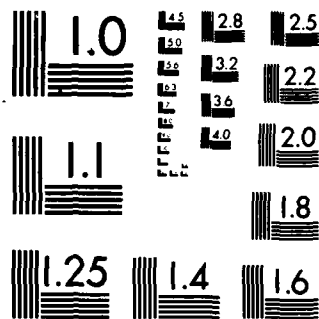
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U.S. and Soviet Rotary Wing
Aviation at the Operational Level of War

by

Major Stephen R. Baribeau
Seminar 4
Aviation

School of Advanced Military Studies
U.S. Command and General Staff College
Fort Leavenworth, Kansas

15 May 1986

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ABSTRACT

U.S. AND SOVIET ROTARY WING AVIATION AT THE OPERATIONAL LEVEL OF WAR: by Major(P) Stephen R. Baribeau, USA, 47 pages.

This monograph analyzes Soviet and U.S. Army rotary wing aviation to determine their respective capabilities to support the execution of operational level war by Soviet and U.S. commanders.

In order to analyze operational level capabilities, a common definition for operational art and level of war has been determined. Current rotary wing organizations and equipment of the Soviet division, army, front and theater and the U.S. division and corps are explained in some detail along with current tactical and operational employment doctrine. Analysis criteria include comparison of command and control doctrine, employment doctrine, relative force size and helicopter design.

Among the many conclusions drawn from this analysis are: rapid Soviet progress since 1975 to close the gap between U.S. and Soviet tactical level rotary wing forces; that decentralization of Soviet rotary wing forces to division, army and front commanders has dramatically improved the ability of the Soviet operational commander to effectively employ helicopters in combat; the dramatic increase in the number of Soviet combat helicopters produced since 1975; the clear advantage enjoyed by the Soviets in operational level heavy-lift helicopters; the realization that Soviet rotary wing forces exist only to enhance the tempo of the all-important land battle while U.S. forces are considered maneuver elements and can establish their own combat tempo.

This monograph concludes that the U.S. Army is on the threshold of dramatic change and can seize the initiative from its numerically superior enemy if it aggressively develops true air-ground maneuver doctrine. Air-ground maneuver will give tactical and operational commanders great flexibility and quantitatively increase the tempo of modern combat.

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SECTION I

INTRODUCTION

In 1982, the Army's keystone warfighting manual, FM 100-5, Operations, underwent comprehensive revision. The manual introduced Airland Battle Doctrine and provided a description of "...the structure of modern combat, the dynamics of combat power and the contemporary application of the principles of war."¹ Airland Battle Doctrine divides warfare into three related but distinguishable military activities: strategy, tactics and operational art. The concept of operational art is new to the current generation of U.S. Army officers and has been one of the most controversial and misunderstood concepts of Airland Battle Doctrine. Operational art is still not universally understood within the officer corps, but the 1986 version of FM 100-5 goes a long way toward clarifying much of the confusion that has surrounded it since 1982.

The 1986 version of FM 100-5 deals explicitly with tactical and operational military activities. Tactical activity centers on the translation of combat power into victorious engagements and battles by corps and smaller unit commanders.² Operational art centers on the successful sequencing of tactical activities to achieve decisive theater-level objectives. Operational activity is focused upon the conduct of campaigns and major operations which are normally planned and executed by large military units

such as armies and army groups and sometimes by corps.³

Success in the conduct of major battles and campaigns requires the proper use of scarce resources to achieve desired military objectives. The operational commander must be able to extend combat power into the depths of his enemy's formation. He must have combat forces which are able to mass at the decisive time and place with sufficient combat power to defeat enemy forces. He must be able to protect his own forces and achieve a tempo of maneuver which exceeds that of his enemy.

Rotary wing aviation offers the operational commander exceptional versatility to perform a wide variety of combat missions which have great potential to contribute to operational success. Logical employment options range from deep operations to rear area protection. This monograph will analyze U.S. Army and Soviet rotary wing aviation to determine their respective capabilities to support the execution of the operational level of war. The findings will hopefully be useful in the development of combined arms doctrine for the employment of U.S. Army rotary wing forces at the operational level of war. Additionally, the analysis should identify weaknesses and strengths associated with Soviet operational level rotary wing employment.

This paper attempts to identify operational strengths and weaknesses by first describing the operational level of war from U.S. and Soviet perspectives. Additional background information necessary for proper analysis includes a brief description of recent U.S. Army and Soviet rotary wing aviation organizations and equipment and a discussion of current rotary wing employment

doctrines. Force size, command and control doctrine, employment doctrine and helicopter design are the criteria used to analyze potential U.S. and Soviet rotary wing force advantages at the operational level of war. Finally, the conclusion recommends doctrinal changes which might reduce Soviet advantages and improve U.S. rotary wing capability, to execute war at the operational level.

There is a fair amount of evidence to suggest that the Soviet rotary wing force has recently surpassed the U.S. force in size and operational capability. Soviet rotary wing aviation is predominantly assigned to operational formations, army and front, suggesting that the Soviets are well prepared to employ rotary wing forces to support operational level warfare. This contrasts with the U.S. Army situation where the employment of rotary wing forces at the operational level is a new and untried concept which deserves thorough study. Current and potential capabilities of U.S. Army rotary wing forces to support the execution of major operations and campaigns by operational commanders must be analyzed and identified. Then these capabilities must be acquired, optimized and maintained.

SECTION II

OPERATIONAL ART AND LEVEL OF WAR: U.S. AND SOVIET PERSPECTIVES.

Soviet Perspective

While the U.S. Army is trying to grasp the full implications of operational art, the Soviets have over forty years of experience with the concept. The origins of Soviet thought about a level of war between strategy and tactics may be traced back at least as far as the writings of Marshal Mikhail N. Tukhachevskiy, head of the Red Army Military Academy and later Chief of Staff of the Red Army. In the early 1930's, Marshal Tukhachevskiy stated that sequential operations are necessary to achieve strategic goals.⁴ He further wrote that defensive operations are undertaken to concentrate forces and prepare armies for battle. Offensive operations, on the other hand, employing breakthrough and envelopment tactics, result in the decisive defeat of the enemy.⁵ Major operations rely on sound communications, transportation lines, repair services, and clear evacuation and replacement plans.⁶ In the Great Patriotic War (WWII), Soviet Armed Forces conducted operational maneuver. Between 1941 and 1945, they perfected operational concepts first set down by people like Marshal Tukhachevskiy.

The Soviet concept of operational art appears to have changed little since the end of WWII despite sweeping changes in weaponry, organization and tactics which have occurred in the Soviet Armed

Forces. The basic principles of current Soviet operational art are well summarized by Col. Vasilii Yefisovich Savkin, a respected Frunze Academy instructor, in his book, The Basic Principles of Operational Art and Tactics, A Soviet View).⁷ Col. Savkin summarized operational principles as follows:

- Mobility and high tempo combat
- Concentration of main effort and creation of superior forces at the decisive place and time
- Surprise (deception and secrecy)
- Military activity and resolve (gain and maintain initiative)
- Preserve combat effectiveness of friendly forces
- Goals must conform to actual conditions (correlation of forces within time and space)
- Success requires close and continuous interworking (coordination and synchronization)

The Soviet military dictionary defines operational art as, "a component of military art dealing with the theory and practice of preparing for and conducting combined and independent operations by major field forces or major formations of the Services."⁸ The dictionary goes on to say that, "operational art is the connecting link between strategy and tactics. Stemming from strategic requirements, operational art determines methods for preparing for and conducting operations to achieve strategic goals, and it gives initial data for tactics..."⁹ The Soviets view operational art as less a level of war than as an activity, a separate and distinct category of military art. Soviet leaders understand

implicitly that political and economic realities of the twentieth century have made it necessary for them to prepare for sequential large unit operations in order to achieve strategic aims.

U.S. Perspective

The 1986 version of FM 100-5 describes operational art as "...the employment of military forces to attain strategic goals in a theater of war or theater of operations through the design, organization, and conduct of campaigns and major operations."¹⁰ A campaign is defined as "...a series of joint actions designed to attain a strategic objective in a theater of war. Simultaneous campaigns may take place when the theater of war contains more than one theater of operations."¹¹ Also, sequential campaigns "...occur when a larger force changes or secures its original goal or when the conditions of the conflict change."¹² A major operation is defined as "...the coordinated actions of large forces in a single phase of a campaign or in a critical battle. Major operations decide the course of campaigns."¹³

FM 100-5 further states that the essence of operational art, "...is the identification of the enemy's operational center-of-gravity (his source of strength or balance) and the concentration of superior combat power against that point to achieve a decisive success."¹⁴ FM 100-5 makes it clear that no particular echelon of command deals strictly with operational art, but theater commanders supported by their army group and army commanders "...normally design major ground operations of a campaign while corps and divisions normally execute those major

ground operations." ¹⁵ U.S. operational art, like Soviet operational art, is the linkage between strategy and tactics. It is the means by which battles are sequenced to achieve strategic aims.

It is clear that both the Soviets and the U.S. Army consider operational art to be a fundamental activity of warfighting. Operational art is the partner of strategy and tactics and the concept of these three activities establish a framework for the preparation for and conduct of war. Soviet and U.S. operational art both involve the preparation for and employment of large units in successive campaigns and major combat operations to achieve strategic aims in a theater of war. In conclusion, the Soviet concept of operational art is quite similar to the U.S. Army's. Therefore, for the purposes of this paper the definition of operational art provided in the 1986 edition of FM 100-5 will be applied to both the U.S. and Soviet efforts to plan for its implementation. Operational art will be defined as, " the design and conduct of campaigns and major operations." ¹⁶

SECTION III

ORGANIZATION AND EQUIPMENT DEVELOPMENTS

IN U.S. AND SOVIET ROTARY WING AVIATION SINCE 1975

Prior to 1975 the U.S. Army enjoyed a clear superiority in tactical helicopter development and employment. Our experience in the Vietnam conflict left us with a large helicopter fleet and good tactical employment doctrine. Since 1975, the U.S. Army's rotary wing force superiority has been gradually reduced by aggressive Soviet modernization and reorganization efforts. It appears quite unlikely that the Soviets have yet gained parity with U.S. rotary wing forces; however, the prospect of them doing so in the near future is significant. Even more important, the Soviets appear to be achieving remarkable success in the development of ever larger and more capable helicopter units at front and army levels. The following section describes U.S. and Soviet rotary wing organizations and equipment since 1975 and provides an essential background for the analysis of U.S. and Soviet rotary wing forces at the operational level which follows.

Soviets

By 1975, the primary Soviet military helicopters were the MI-8 HIP, MI-2 HOPLITE, MI-6 HOOK, and the new MI-34 HIND. The HIP remains the Soviet's primary medium-lift helicopter. A modernized version, the HIP-E, is designed for assault, forward area logistical movement and fire support. It is as large and

powerful as the U.S. CH-47 CHINOOK medium-lift helicopter and more versatile because it is heavily armed with rockets and guns. The HOPLITE, considered in 1975 as a combat utility helicopter, now performs administrative and command/control functions. The HOOK, in 1975 the largest heavy-lift helicopter in the world, handily outperformed the U.S. heavy-lift helicopter, the CH-53 CRANE. The HOOK remained the world's largest helicopter until 1981 when the Soviets fielded the MI-26 HALO. The HOOK and the more powerful HALO give rear service commanders exceptional ability to move critical supplies and manpower about the battlefield, regardless of the condition of road and rail nets.

In 1974 the Soviets fielded the HIND in Group of Soviet Forces, Germany (GSFG). They had closely monitored the success of U.S. Army AH-1 COBRA gunships in the Vietnam conflict. The HIND was their answer to the COBRA. As John Everett-Heath, a noted Soviet helicopter analyst, stated in his 1984 article outlining the evolution of Soviet helicopters, "the introduction of the HIND represented a new approach to Soviet helicopter philosophy..."¹⁷ The HIND, a multi-role armed helicopter, was designed to provide close fire support for ground troops, anti-tank fires, armed assault (it can carry eight fully-equipped combat troops) and limited anti-helicopter capability.¹⁸ Improved models, the HIND-D and E, continue to operate as the Soviet primary close air support (CAS) weapons system, a practice which allows fixed wing aircraft to concentrate on interdiction and air superiority.¹⁹

In 1979, major organizational changes began to occur within Soviet rotary wing forces. These changes are best illustrated by

the reorganization of each military district's Air Force into Tactical Air Armies.²⁰ The reasons for these changes are not totally understood, but as John Everett-Heath has surmised, there is "...no doubt that the Soviets [have gained] greater operational flexibility and speed of reaction from this decentralization."²¹ The trend towards the decentralization of helicopters within the Soviet forces continued, and by 1984 a general purpose squadron with eighteen helicopters (6 HIND's, 6 HIP's, 6 HOPLITE's) had been fielded and directly subordinated to division commanders for administrative, logistical and tactical-level combat support. An attack helicopter regiment and a general purpose squadron were subordinated to army commanders for tactical and operational combat support. A general purpose squadron, a heavy-lift transport regiment and an electronic countermeasure helicopter squadron were subordinated to front commanders.²² Finally, several assorted helicopter units were established at military district level, primarily transport units assigned to Military Transport Aviation. Civilian Aeroflot helicopters and crews provide the equipment and manning base for these strategic reserve units.²³ (see Appendix RED for major equipment and organization charts for Soviet rotary aviation.)

In summary, Soviet rotary wing aviation remains officially an Air Force asset; however, division, army and front commanders have received substantial numbers of helicopters for tactical and operational employment. The Soviets continue to improve night vision devices, weapons systems and associated optics and navigation devices. They have an aggressive advanced helicopter

research and development program. For example, the previously mentioned HALO heavy-lift helicopter is the worlds largest and most powerful rotary wing craft, able to transport 100 troops, two airborne infantry combat vehicles (BMD) or 21 tons of cargo a distance of 800 kilometers.²⁴ New helicopters include the MI-28 HAVOC and the KA-? HOKUM. The HAVOC is an advanced anti-tank helicopter similar to the U.S. Army AH-64 APACHE while the HOKUM is optimized for air-to-air combat against helicopters and sub-sonic fixed wing aircraft.²⁵ Organizational structures appear to have stabilized; however, it is likely that division and army rotary wing organizations will increase in size as additional helicopters are made available. The Soviets manufacture approximately 800 new helicopters a year and older helicopters are being upgraded rather than being retired from active service.²⁶ These growing numbers of sophisticated combat rotary wing assets will most likely be made available to tactical and operational combined arms commanders.

United States

The U.S. Army Tactical Mobility Requirements Board which convened under the leadership of LTG Hamilton H. Howze in 1962, set the stage for development of the concept of airmobility that proved indispensable during the Vietnam conflict. By 1975, airmobility, as first practiced by the 11th Air Assault Division at Fort Benning, Georgia, had become an important U.S. Army warfighting capability.²⁷ The AH-1 COBRA, assisted by the OH-58 KIOWA, had proven itself an effective aerial weapons platform for airmobile escort, fire support for troops in contact and against

enemy armor. The UH-1 HUEY became a versatile air assault, medical evacuation and command and control helicopter. Resupply of air mobile forces was performed by CH-47 CHINOOK and CH-53 CRANE helicopters.

In the years following 1975, the Army continued to explore the combat potential of the helicopter. The COBRA, which was initially considered aerial artillery, began to be employed more and more as an anti-tank system. When this occurred, Armor Branch replaced Artillery as the proponent for armed helicopters. Along with the armed helicopter, Armor Branch also inherited the COBRA's partner, the KIDWA scout. Infantry Branch became the proponent for air mobile operations and the UH-1 HUEY. Transportation Branch, because it controlled rear area support assets, became the proponent for the CHINOOK and CRANE. Rotary wing employment doctrine, force structure and system acquisition became hopelessly fragmented and subject to branch interests. The Army resolved most of these issues in 1983 when it granted Army Aviation branch status. Concurrently, Army of Excellence (AOE) initiatives resulted in the development of evolutionary organizations for the new Aviation Branch.

The combat aviation brigade (CAB) consolidates and optimizes the employment of rotary wing assets for each division and corps. The CAB staff is capable of planning the full range of combat operations. The CAB gives the division and corps commander the ability to employ effectively reconnaissance/surveillance, attack, air assault, command and control and combat service support helicopters. The key systems available to division and corps

commanders are the UH-60A BLACKHAWK and UH-1H HUEY utility helicopters, the AH-1 COBRA and AH-64A APACHE attack helicopters, the OH-58C/D KIDWA scout and the CH-47C/D CHINOOK medium-lift helicopter.

The generic heavy division CAB has an HHC, two attack battalions, a reconnaissance squadron, a combat aviation company and a general support aviation company.²² The generic heavy corps CAB has a HHC, two attack regiments (each consisting of an HHC and three or more attack battalions) and a combat aviation regiment (consisting of an HHC, two UH-60 assault battalions, a CH-47 medium-lift battalion and a general purpose battalion). (See Blue Appendix for major equipment and organization charts)

In summary, the current brigade organization consolidates combat aviation assets for division and corps commanders. CAB assets will normally be employed to accomplish division or corps tactical missions. Each CAB is capable of operating on wide frontages and in great depth. This versatility gives corps, army and army group commanders far-ranging tactical and operational employment options.

SECTION IV

CURRENT EMPLOYMENT DOCTRINE FOR U.S. AND SOVIET

ROTARY WING AVIATION

Soviet Doctrine

Ideology and WWII are the foundations upon which current Soviet warfighting doctrine has evolved. Violent, high-speed combined arms offensive action by echeloned, highly-mobile combat forces are the essence of Soviet military doctrine. In recent years, armed helicopters have become key combat systems supporting high tempo ground combat. The Soviets perceive the helicopter as a means of extending the scope and pace of tactical and operational-level land operations. Viktor Suvorov, prominent Soviet analyst and defector, states that Soviet commanders view "the helicopter as a tank - one which is capable of high speeds and unrestricted cross-country performance...a tank with a rotor instead of tracks..."²² The Soviets have fully integrated the helicopter into the tank-dominated land battle.

Tactical-level missions for armed helicopters include destruction of enemy tanks, direct close air support, and anti-helicopter combat. The HIND and follow-on attack helicopters are being equipped with state of the art, air-to-air missiles designed to destroy helicopters and subsonic fixed wing aircraft which threaten Soviet combined arms operations. Operationally, the

Soviets have emphasized the use of armed helicopters for escort purposes and CAS for army-level air assault brigades and operational maneuver groups (OMG).²⁰

Ironically, the Soviet assault helicopter, the HIP, can carry even more armament than the HIND; however, it lacks the armor, visionics and weapons controls found on the HIND. Its primary tactical role is the movement of heliborne forces. The HIP operates well forward in the battle area supporting tactical units with ammunition, POL and rations. HIPs support the operational employment of front and army-level air assault brigades and battalions and play a key role in the employment of the OMG.²¹

The Soviets continue to make great strides in the development and employment of heavy-lift helicopters. The HALO and HOOK are found at front level in the transport helicopter regiment. As previously stated, the HALO or HOOK can support the movement of heavy weapons or combat vehicles for operational formations such as the army air assault brigade or an OMG. They are normally employed to assist rear services in the accomplishment of critical operational resupply missions. In conclusion, the Soviets are optimizing rotary wing aviation flexibility, speed and firepower to enhance combined arms combat and to increase the tempo of the land battle.

United States Doctrine

U.S. rotary wing employment doctrine has been undergoing tremendous change since 1982. The impetus for change began with Airland Battle Doctrine in late 1982, followed closely by the founding of Aviation Branch and the beginning of Army of

Excellence force design initiatives in 1983. These events required aviators and non-aviators alike to step back from day-to-day operations and consider how aviation was being employed on the battlefield and what it might be capable of accomplishing. Several aviation requirements studies completed in the late 1970's (including tests of an Air Cavalry Attack Brigade and a Combat Brigade, Air Attack) convinced the Army's leadership that CAB structure was an ideal structure for the Airland Battlefield.

FM 1-100, Combat Aviation Operations, published in September 1984, lists the roles and functions of Army aviation. The stated missions include attack, air assault, reconnaissance, intelligence and logistical support.²² The manual further states that aviation must fight as an integral member of the combined arms team and provide it with unprecedented maneuver speed, firepower, and agility. Employment doctrine includes the concept of an aviation brigade staff that is capable of planning and executing a full range of combat operations. This includes the command and control of ground combat forces attached to or under the operational control (OPCON) of the brigade for specific operations. The principles of employment as listed in FM 1-100 are as follows:²³

- Fight as an integral member of the combined arms team.
- Exploit the capabilities of other services.
- Capitalize on intelligence-gathering capabilities.
- Suppress enemy weapons and acquisition means.
- Exploit firepower.
- Exploit mobility.
- Integrate fire and movement.

- Employ surprise.
- Mass forces.
- Use terrain for survivability.
- Displace forward elements frequently.
- Maintain flexibility.
- Exercise staying power.

Essentially, the aviation brigade supports infantry and armor task forces in the accomplishment of ground combat missions. Rotary wing aviation has traditionally been employed to increase the tempo of ground combat. FM 1-100 introduces the idea that aviation units are capable of performing independent and combined arms air maneuver. The brigade, employed as a maneuver force, can operate at a much higher tempo of combat than ground forces, thus providing opportunities for tactical and operational commanders to increase significantly the tempo of combat. The primary maneuver elements of an aviation brigade are its attack battalions, the inherent speed and flexibility of which allow the brigade to achieve quickly positional advantage for destroying an enemy force.

The division aviation brigade conducts tactical missions. As previously stated, these missions include attack, air assault, reconnaissance, intelligence and logistic support. The corps aviation brigade normally performs tactical missions; however, the corps brigade has substantial medium-lift assets and approximately three times the assault and attack capability of a division brigade. Sheer size and its ability to project combat power seem

to give the corps CAB a greater potential to support operational maneuver.

In summary, the rotary wing aviation employment doctrines of both the U.S. and Soviet armies emphasize tactical-level combat support for ground maneuver forces. Soviet doctrine also emphasizes support for operational formations such as OMG's and air assault brigades. Similar U.S. rotary wing operational doctrine does not exist. Except for a few major battles in Vietnam, the U.S. has no experience in the operational employment of helicopters. The corps CAB, although primarily a tactical force, will provide corps, army and army group commanders with a force well suited for operational level missions. The corps brigade is a large and powerful force with the necessary staff and command and control structure to perform operational level missions.

SECTION V

ANALYSIS: DOES AN OPERATIONAL ADVANTAGE EXIST?

Our discussion thus far has attempted to familiarize the reader with current U.S. and Soviet rotary wing organizations, equipment and employment doctrine. This section will go one step further and analyze specific command and control and employment doctrine and compare force size and helicopter design to determine if the Soviet or U.S. rotary wing force has distinct advantages at the operational level of war.

Command and Control Doctrine

One of the cardinal principles of Soviet military art is that the successful conduct of operations requires the coordinated efforts of all types of armed forces and branches of troops.³⁴

The above excerpt from a 1983 Defense Intelligence Agency Appraisal on Soviet Army Aviation reflects the absolute importance of unity of command in the effective command and control of rotary wing forces. Rotary wing command and control relies heavily on simple and clear command relationships based upon four variations of subordination (command relationships).³⁵ These command relationships, which directly influence Soviet rotary wing control, are explained below:

Direct Subordination: Subordination to all higher

commanders beginning with the immediate one.²⁶

Immediate Subordination: Subordination to next directed superior. The commander of a division is the direct superior of all personnel in his division and the immediate superior of the commanders of regiments, separate battalions or squadrons, and chief of staff.²⁷

Subordination in an Operational Sense: Subordination which is incomplete and usually temporary to a person who is not the direct commander. Usually occurs when a unit is subordinated to a commander for a particular task or period of time.²⁸

Subordination in a Special Sense: Subordination on individual questions of a service, type of armament or any special area of activity to a person not the direct superior. For example, a division deputy commander for rear services is simultaneously the immediate subordinate of the division commander and a subordinate in a special sense to the army or military district commander for rear services. This includes such things as rear service planning, norms, and inventories.²⁹

Division, army and front commanders have Air Force helicopter assets directly subordinated to them from the Tactical Air Army (Army Aviation). This decentralization is intended to shorten the time delay necessary to plan for, request, receive and integrate non-organic rotary wing support. Rotary wing assets subordinated to division, army and front commanders remain subordinated (special subordination) to the Soviet Air Force for maintenance, parts, pay and records, basic training and systems procurment. Simply stated, Soviet helicopter "blue suiters" are members of the Soviet Air Force who work for Army commanders.

At the operational level of war (army and front), centralization is a desired principle of Soviet command and control doctrine. It is also at the operational level that some of the perceived tactical inflexibility of Soviet command and

control begins to break down under closer scrutiny. For example, rotary wing units that support OMGs are normally assembled from front, army and theater assets. These groupings are subordinated to the OMG commander and employed in one of three ways to support the OMG.⁴⁰

The first option is for all rotary wing units to be directly subordinated to the OMG commander and for them to travel with and operate from within the OMG. For example, a front-level OMG (an army) would probably subordinate (immediate subordination) all rotary wing units to the army deputy for aviation. The deputy would employ rotary wing forces as requested by the commander ensuring centralized command and control and operational flexibility.

The second option requires helicopters to operate from secure bases inside the main force area and to "commute" to and from the OMG whenever support is required. Command and control in this case would be exercised through operational subordination. The deputy for aviation would control aviation forces only during the time they support the OMG. This command and control option is less desirable since control would very likely become more difficult as the OMG moves deeper into enemy territory and further away from friendly lines.

The third option is a combination of the first two and requires rotary wing units initially to operate from secure bases within the main force area and then, as distances to the OMG become untenable, to stay with and operate from the OMG. This option requires the OMG commander to have with him an aviation

commander and staff to coordinate support from secure bases and then to assume immediate subordination of rotary wing assets when they begin to operate from the OMG.

Soviet operational command and control doctrine, as demonstrated by the OMG, is quite flexible. Command relationships are structured to meet mission requirements. Control is exercised primarily through radio and the use of detailed orders. Established Air Force command and control systems are also used by rotary wing forces when appropriate.

Command and control for operational-level U.S. rotary wing forces relies heavily on the corps CAB organization. The corps CAB is commanded by a colonel (brigadier general in time of war) who is also the corps aviation officer. It is through the CAB commander and his staff that all missions and subsequent command relationships with other headquarters are established. Centralized planning and decentralized execution are desired CAB command and control methods. To help him, the corps CAB commander has two regimental headquarters for the command and control of attack helicopter battalions and another regiment for the command and control of assault, general purpose and medium-lift companies and battalions. In addition to normal staffs, the CAB has an airspace command and control element which interfaces with the corps cell. This interface gives the corps CAB the ability to coordinate directly with Army Air Defense and Air Force commanders.

The Corps CAB establishes command and control relationships as necessitated by corps orders. Divisions might assume

operational control or attachment of corps assets to support division tactical operations. The corps CAB might be designated the corps reserve or conduct specific tactical missions which complement a particular divisional battle. Operational employment might occur when the corps CAB executes deep operations in support of army or army group major operation or a theater campaign plan. In such a case, the CAB might operate independently or be reinforced with additional air or ground forces. Command relationships would vary from attachment to operational control with command and control being exercised through existing staffs, operations centers and communications systems. Another corps-level operational employment option might require the corps CAB to support a division in the conduct of a major corps battle. In this case, the corps CAB might be placed OPCON to the division. The division would task combat and logistic support through the CAB staff. As in the previous example, command and control would be exercised through existing staffs, operations centers and communications systems.

The corps CAB command and control system is structured to provide command and control for the full range of combat missions. It can provide combat support to corps and divisions, conduct independent operations or be task organized as part of or in command of a larger combined arms force. Centralized command and control is practiced by the CAB commander and staff while decentralized execution occurs at the regimental, battalion and company levels.

Both Soviet and U.S. rotary wing aviation employment at the

operational level appear to be centrally planned and decentrally executed. Soviet operational command and control is not as rigid as some might hope, especially for rotary wing forces. It appears that the speed, mobility and versatility of the rotary wing force demands decentralization and flexibility. On the other hand, Soviet rotary wing forces continue to rely on strict tactical battlefield controls. Airspace is rigidly controlled, helicopter-delivered CAS is employed within the air force close air support system and deviation from time sensitive orders is frowned upon. Battle drill remains very important. U.S. rotary wing forces, on the other hand, probably enjoy a greater degree of freedom to make decisions on the battlefield. They operate in less rigidly controlled airspace and appear to have more freedom to deviate from assigned missions.

Employment Doctrine: Support vs. Maneuver

The Soviet operational-level rotary wing force is a powerful combat support force which has become increasingly important to the successful execution of ground battles and campaigns. Troop movement, close air support, anti-tank fires, air-to-air combat, reconnaissance, command and control and combat resupply are all responsibilities of Soviet rotary wing forces. The operational commander would not attempt conventional combat operations without the assistance of the helicopter.

The U.S. operational commander requires the services of his rotary wing force for similar reasons; however, he enjoys one key employment advantage over his Soviet counterpart. Divisional and

corps CAB's are organized and prepared to conduct air maneuver and support ground maneuver forces.

FM 101-5-1 defines maneuver as "the movement of forces supported by fire to achieve a position of advantage from which to destroy or threaten destruction of the enemy."⁴¹ Support is defined as, "the action of a force that aids, protects, compliments, or sustains another unit."⁴² In the U.S. Army, armor, infantry and aviation are considered capable of conducting maneuver. Rotary wing forces have the potential of being a dynamic and decisive element in a battle or campaign. It is even possible that armor and infantry forces might maneuver to complement aviation plans.

The distinction between support and maneuver is important to understand how Soviet rotary wing forces are employed. For example, to the Soviet, only armor, infantry and reconnaissance units are considered to be maneuver elements.⁴³ All other branches and services support armor and infantry formations in the execution of the all-important land campaign. Only armor and infantry are seen as capable of achieving decisive results and ultimate victory on the battlefield.

Key to the Soviet employment of rotary wing forces is their concept of combined arms doctrine. The missions assigned to Soviet helicopter units are intended to ensure the uninterrupted tempo of ground combat. The missions are not so different from those given U.S. forces but, they seldom, if ever, have a momentum of their own. The power of the rotary wing force is focused against enemy forces that threaten to slow ground forces. U.S.

rotary wing forces are envisioned as capable of focusing their combat power against enemy forces not yet in contact with ground forces. By preempting the enemy plan, the rotary wing force can gain the initiative, set the conditions for further combat and raise the tempo of combat beyond that achievable by ground forces.

Soviet rotary wing units are considered fire suppression, organic defense (anti-tank and anti-air) and combat support (logistical support) elements. Although not contrary to Soviet combined arms doctrine, it is currently inconceivable that a rotary wing force combined arms commander might be assigned missions which do not directly support the land battle. Soviet rotary wing units are employed to enhance ground-paced maneuver rather than to set maneuver tempo. Conversely, the U.S. Army is examining combined arms air-ground maneuver doctrine which allows rotary wing aircraft to increase maneuver tempo. The force able to employ air-ground maneuver will most likely possess a clear tactical and operational advantage.

Force size

As with all things in the Soviet military, their operational level rotary wing force is large and powerful. Each army commander, whether commanding a combined arms or tank army, has directly subordinated to him 46 HIND, 35 HIP and 5 HOPLITE helicopters. A front commander has an additional 24 heavy-lift HALO or HOOK, 52 HIND and 10 HOPLITE helicopters. The front commander can also draw on strategic reserves from TVD and receive

a heavy lift regiment with approximately 48 HALO or HOOK. A front comprised of four armies can mass 72 HALO or HOOK, 160 HIND, 192 HIP and 30 HOPLITE helicopters.

The generic AOE heavy corps aviation brigade has 126 COBRA or 108 APACHE, 113 KIDWA, 108 BLACKHAWK, 24 HUEY and 64 CHINOOK helicopters. An army with only two U.S. corps would contain 252 COBRA or 216 APACHE, 113 KIDWA, 216 BLACKHAWK, 48 HUEY and 128 CHINOOK helicopters. In addition, each generic heavy division CAB has 50 COBRA, 50 KIDWA, 6 Huey and 24 BLACKHAWK helicopters.

In conclusion, both the Soviets and the U.S. have large powerful rotary wing forces for operational missions. The Soviets however, have a distinct advantage in the availability of heavy-lift helicopters. The 72 HALO/HOOK helicopters available to a front commander provide excellent aerial logistics capability within army and front rear areas. Front and army commanders can use available HOOK and HALO helicopters to reposition major forces and war stocks in a given theater of operations. Heavy-lift helicopters give the operational commander an excellent alternative to preferred rail, road and air force intra-theater transport. They also give the Soviet operational commander an advantage wherever critical rail, road and air lines of communications (LOC) are disrupted or become crowded. Soviet rotary wing heavy-lift helicopters provide army and front commanders with extremely flexible and responsive logistical capability.

Helicopter Design: Specialized vs. General Purpose

The successful employment of rotary wing aircraft at the operational level of war depends on the relative simplicity and dependability of aviation systems. In the 1970's, the Soviets observed the U.S. develop specialized medium-lift, attack, scout and assault helicopters. They subsequently developed the HIND and the HIP, the first optimized for attack and the latter for assault. Because the HIND and HIP designs were generalized instead of specialized, both systems were given the capability to perform attack and assault missions. In the early 1980's, the U.S. Army realized that it would be unable to continue developing and fielding helicopters for special missions. Specialized design was replaced by generalized design in the form of the Light Helicopter, Experimental (LHX).⁴⁴ A scout/attack (SCAT) version of the LHX will replace the KIOWA and the COBRA and supplement the APACHE. A utility version of the LHX will replace the HUEY and supplement the BLACKHAWK. The design of the SCAT and utility LHX will stress commonality of major components, visionics, and weapons systems, such as air-to-air missiles which are on both versions. This will ensure significant repair part and major sub-system compatibility. Reduced procurement costs, streamlined parts requirements and mission flexibility are seen as the most obvious advantages gained by such general-purpose helicopter design.

While the U.S. is working on general purpose designs, the Soviets are hard at work on specialized designs. They currently

are developing the HAVOC and HOKUM helicopters to supplement the HIND. The HAVOC, similar to the U.S. APACHE, should enter active service in the near future; while the HOKUM, which is being developed for air-to-air combat, is undergoing testing. Both designs indicate a desire to develop specialized combat helicopters. In addition, the Soviets are working on a replacement for a new medium-lift armed helicopter to replace the HIP, continuing work on heavy-lift systems and will possibly be fielding a new reconnaissance/liaison helicopter.⁴⁵ The Soviet trend toward specialized helicopters seems contrary to the realities of constrained resources and limited budgets. Even Soviet military leaders must justify military procurement to politicians. Finally, specialized design complicates maintenance, supply and training. Victory on the highly lethal and non-linear battlefield demands easily maintained and durable helicopters. Based simply on the search for simplicity and reduced costs, the U.S. trend toward generalized design should pay high dividends on future battlefields.

SECTION VI

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Does the U.S. or Soviet rotary wing force have greater capability to support ground force commanders at the operational level of war? Does either force possess significantly superior command and control doctrine, employment doctrine, helicopter design or size advantage?

Modern combat demands responsive command and control to enable rapid and timely employment of sophisticated systems. Command and control of a rotary wing force is especially challenging. The Soviets plan operational employment of their rotary wing force using centralized command and control and decentralized execution; however, rigid airspace controls and procedural constraints, such as the requirement to conduct CAS missions under the control of Air Force forward air controllers, somewhat limit the flexibility of Soviet helicopter forces. Diversions and mission changes are not desirable because they upset activities dependent on a specific time schedule or sequence of events.

U.S. combat planning is also centralized while execution is decentralized. The CAB command and control system can support various task organizations capable of conducting a wide range of

combat missions. Whether working with other maneuver forces or alone, U.S. CABs do not need nor expect overly rigid controls. Routes, fire support restrictions and air space coordination is accomplished on a mission basis and is only as restrictive as necessary. Mission changes and diversions, while generally best avoided, are possible because U.S. plans are normally not dependent on timed or sequential operations.

It appears that both the Soviets and the U.S. centrally plan rotary wing employment. It also seems clear that execution is decentralized; however, the Soviet rotary wing force may be slightly more constrained because of more rigid airspace command and control and less flexibility to divert from planned missions. The Soviets appear to be committed to improving responsiveness of rotary wing support to ground commanders. The Soviet trend, therefore, should be towards less rigid controls and more reliance on initiative and mission-type orders.

U.S. rotary wing organizations and combined arms doctrine support the concept of air maneuver, a combined arms activity in which rotary wing forces deprive the enemy of control of the ground over which the attack passes. The enemy is therefore confronted with an expanding sector of threat and danger of encirclement and annihilation. Pressure is exerted against the enemy in all directions and he is forced into a pattern of reaction. Ground maneuver forces complement air maneuver by controlling the ground swept by air combat units. Mechanized ground forces consolidate terrain and destroy by-passed enemy forces. Air assault and motorized infantry are moved along with

attacking air combat forces to control key terrain. Ground maneuver forces that follow then consolidate gains and assault and motorized infantry are made available for further commitment.⁴⁶

Current Soviet combined arms doctrine does not consider the concept of air maneuver. Soviet operational rotary wing forces are Air Force assets subordinated to army commanders. Doctrinally, subordination of army assets to an Air Force commander is possible; however, in practice this is not done. Under current circumstances, the only role possible for Soviet rotary wing units at the tactical and operational levels of war is support for the ground commander. The helicopter is used to increase the tempo of the ground combat. It resupplies the ground force more rapidly than any other force; it provides responsive close air support. Rotary wing aviation can respond across wide zones with responsive anti-tank fires. It provides the ground commander the capability to employ air assault and conduct reconnaissance. The Soviet ground commander views rotary wing forces as a faster tank, a mobile anti-tank system and troop carrier. Operational formations such as air assault brigades and the OMG also employ rotary wing aviation in a supporting role.

Current U.S. and Soviet rotary wing employment doctrine is quite similar. Both forces emphasize support for ground maneuver forces. The U.S. is endeavoring to develop doctrine for air maneuver which attempts to increase the tempo of combat to the speed of the helicopter. Such an advantage might have a significant impact on the conduct of future war.

The Soviets have in recent years outproduced the U.S. and now

have more helicopters in military service; however, the organization of those forces may not give the Soviets operational flexibility. Soviet operational rotary wing forces are separate aviation regiments and squadrons directly subordinated to front and army commanders. The army commander has a separate attack regiment, transport squadron and general purpose squadron. He can be reinforced with division, front and theater assets. U.S. army and army group commanders will soon have powerful corps aviation brigades available for operational maneuver. Corps CABs can be reinforced by division aviation brigades, thus providing corps, army and army group commanders even greater operational flexibility. Even though the Soviets claim numerical superiority in rotary wing aircraft and have a clear advantage in heavy-lift capability, they may lack some of the flexibility offered U.S. Army operational commanders by CAB structure. Beyond the implications of superior heavy-lift and the potential advantages of CAB structure, the size of U.S. and Soviet rotary wing forces give neither a distinct operational advantage.

Early U.S. helicopter development lacked long-term systems planning. For example, when the need for an armed helicopter arose in the Vietnam conflict, the UH-1 was modified and the AH-1 fielded. The requirement for a scout helicopter was satisfied by the adoption of two civilian helicopters, the OH-6 and the OH-58. The CH-53 and the CH-47 were developed to provide logistical support for U.S. combat units. The AH-64 and UH-60 were designed for distinct attack and lift roles. Only in the last three years has the U.S. Army, specifically Aviation Branch, begun to plan

long range development and acquisition of future rotary wing systems. From a beginning marked by specialized design, the Army is now planning more cost-effective, generalized designs. The LHX will be produced in only two versions, a scout/attack or utility helicopter. Common helicopter parts and sub-systems such as visionics and navigation packages will result in great savings in development, maintenance and operational costs. The Soviets appear to have gone the other direction. Their first attack helicopter, the HIND, was also capable of conducting the air assault mission. The HIP, an assault helicopter, was also capable of attack missions. Helicopter design is becoming much more specialized. For example, the HAVOC attack helicopter does not have an assault capability and the HOKUM is being optimized for the air-to-air role. This trend by the Soviets toward specialized rotary wing design will increase future acquisition and development costs. Beyond economic considerations it will also complicate maintenance and resupply on the battlefield. Success at the operational level of war will most likely depend on simple, dependable systems. The U.S. trend toward generalized design of rotary wing aircraft should result in greater simplicity and increased dependability.

Operational advantages possessed by Soviet rotary wing aviation units are superiority in heavy-lift helicopters and, assuming the continuing production of 800 helicopters a year, the potential ability to overwhelm U.S. forces. U.S. operational advantages appear to be greater employment flexibility and the realization that rotary wing forces, employed as air maneuver

forces, can substantially increase the tempo of modern combat. As stated in the Combined Arms Center (CAC) White Paper entitled, Employment of Combat Aviation, air maneuver "...seeks to translate agility into operational tempo."⁴⁷ Air-ground maneuver combined with combat aviation brigade structure, flexible command and control, and dependable/maintainable systems should give the U.S. rotary wing force a distinct operational advantage over Soviet rotary wing forces. Implications for the U.S. force are clear. We must quickly develop effective combined arms air-ground maneuver doctrine.

RECOMMENDATIONS

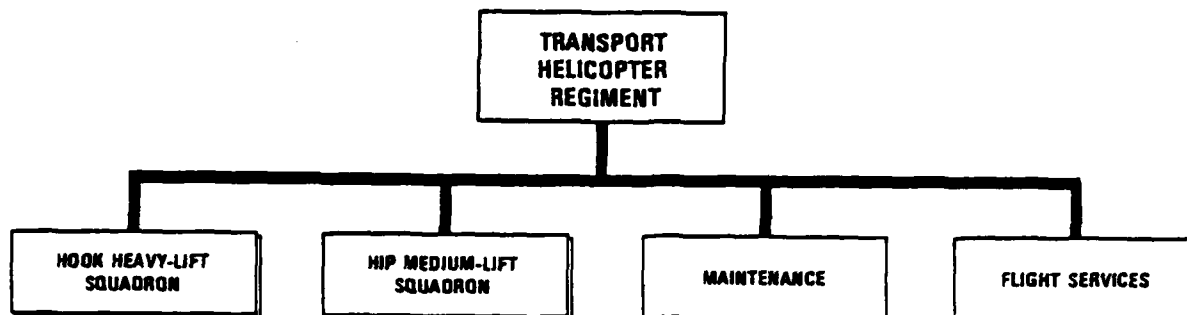
If the U.S. Army is to fight outnumbered and win, it must thoroughly study the art and science of modern war and develop doctrine that optimizes the employment of scarce resources. Airland Battle Doctrine has been our army's most thorough and aggressive recent study of war. It is a dynamic doctrine which emphasizes offensive spirit, initiative, agility, depth and synchronization. Army aviation, which achieved branch status during the same period that Airland Battle Doctrine evolved, has been compared with Armor in the 1930's. It is seen by many as the force most ideally suited for modern warfare, yet, "like the early tank, modern helicopters are less agile, more vulnerable, and far more expensive than an ideal air combat vehicle should be."⁴⁸ The challenge for the U.S. Army is, "...pressing forward the examination of [air maneuver] potential, whether in doctrinal and materiel development and field exercise"⁴⁹ in order that we might

gain a significant operational advantage over Soviet forces. The U.S. Army must exploit air-ground maneuver and we must do so quickly. We do not have the twenty plus years that it took the tank to become the accepted partner of infantry. Modern warfare is on the threshold of dramatic change and the U.S. Army must seize the initiative. The acquisition in the future of a combined arms air-ground maneuver capability will multiply the options available to tactical and operational commanders and increase the enemy's vulnerability to both air and ground combat forces. Air-ground maneuver will quantitatively increase the tempo of war and change the very nature of modern warfare.

APPENDIX RED

"FRONT ARMY AVIATION"

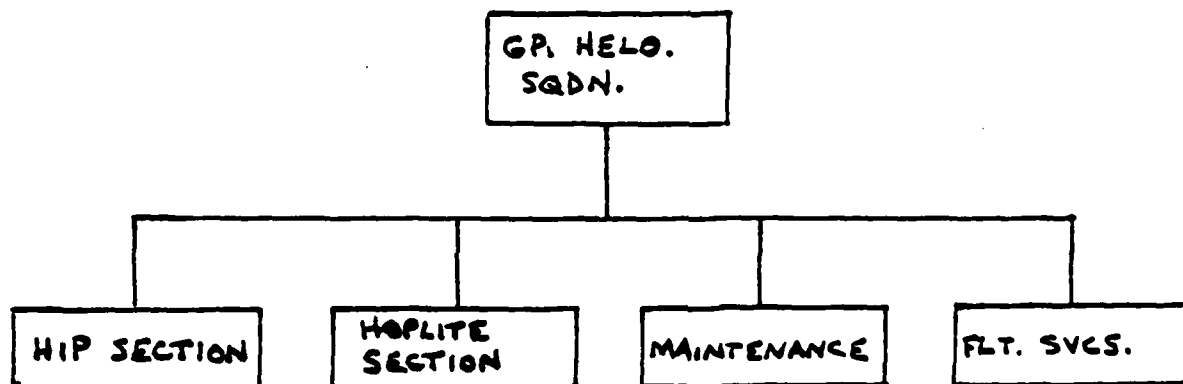
Transport Helicopter Regiment:



<u>Equipment</u>	<u>Total</u>
Heavy-lift Helicopter, MI-6/HOOK or MI-26/HALO.....	24
Medium-Lift Helicopter, MI-8/HIP C or MI-17/HIP H...	32

Source: FM 100-2-3, p. 4-125

General Purpose Helicopter Squadron

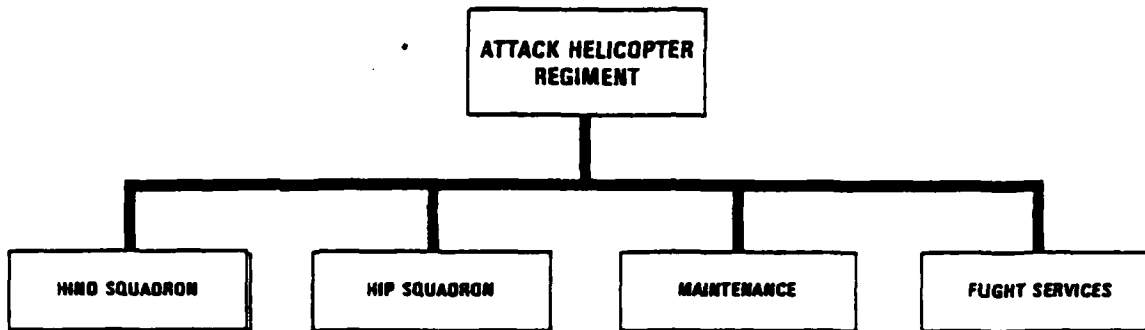


<u>Equipment</u>	<u>Total</u>
Medium-Lift Helicopter, MI-8/HIP C or MI-17/HIP H...	20
Utility Helicopter, MI-2/ HOPLITE.....	10

Source: FM 100-2-3, p. 4-124.

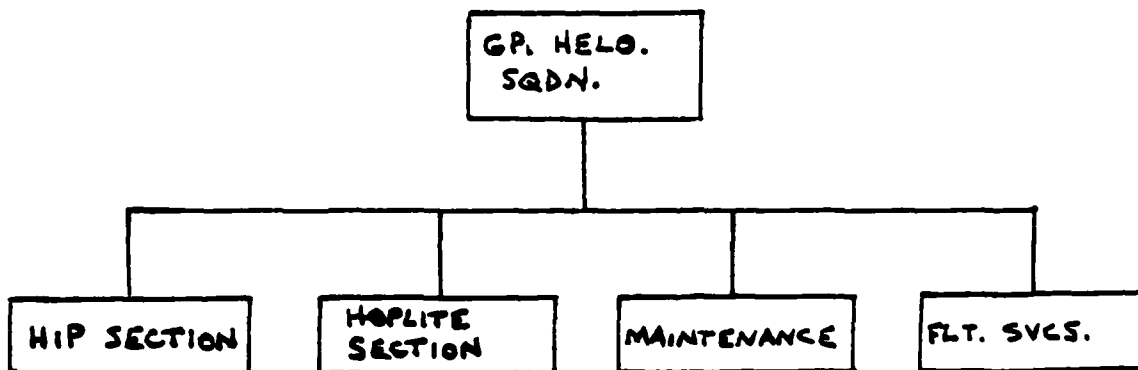
"ARMY LEVEL ARMY AVIATION"

Attack Helicopter Regiment:



<u>Equipment</u>	<u>Total</u>
Attack Helicopter, MI-24/HIND D or E.....	40
Attack Helicopter, MI-8/HIP C or E.....	20
Source: FM 100-2-3, p. 4-122.	

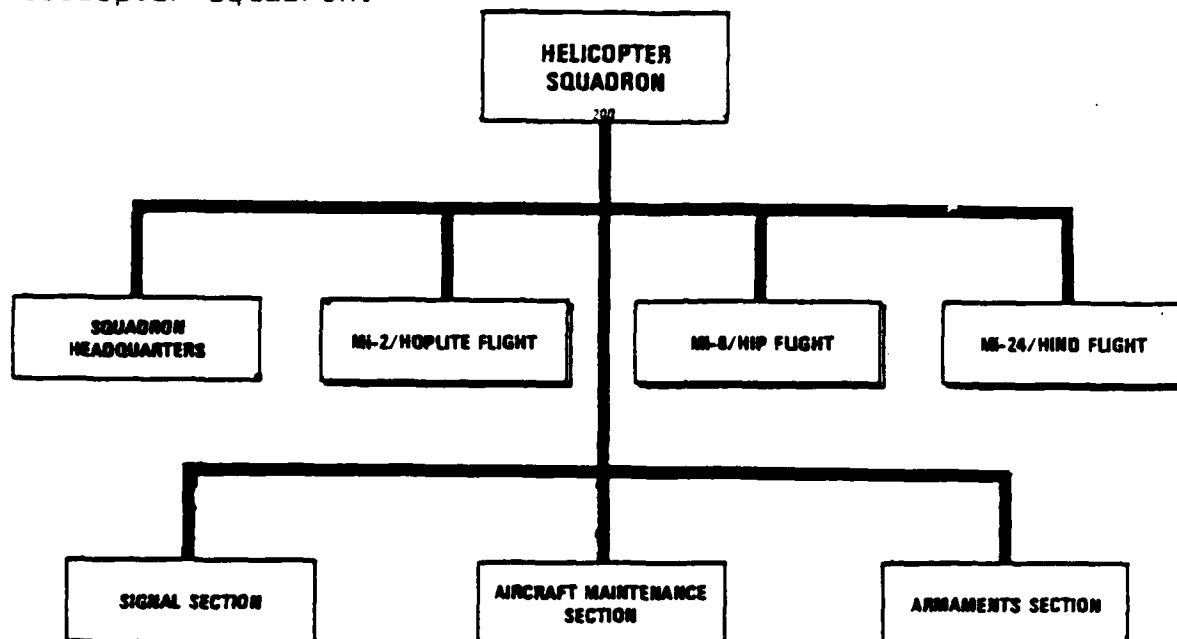
General Purpose Helicopter Squadron:



<u>Equipment</u>	<u>Total</u>
Medium-Lift Helicopter, MI-8/HIP C or E.....	15
Utility Helicopter, MI-2/HOPLITE.....	5
Source: FM 100-2-3, p. 4-114.	

"DIVISION ARMY AVIATION"

Helicopter Squadron:



<u>Equipment</u>	<u>Total</u>
Attack Helicopter, MI-24/HIND D or E.....	6
Medium-Lift Helicopter, MI-8/HIP C or E.....	6
Utility Helicopter, MI-2/HOPLITE.....	6

Source: FM 100-2-3, p. 4-93.

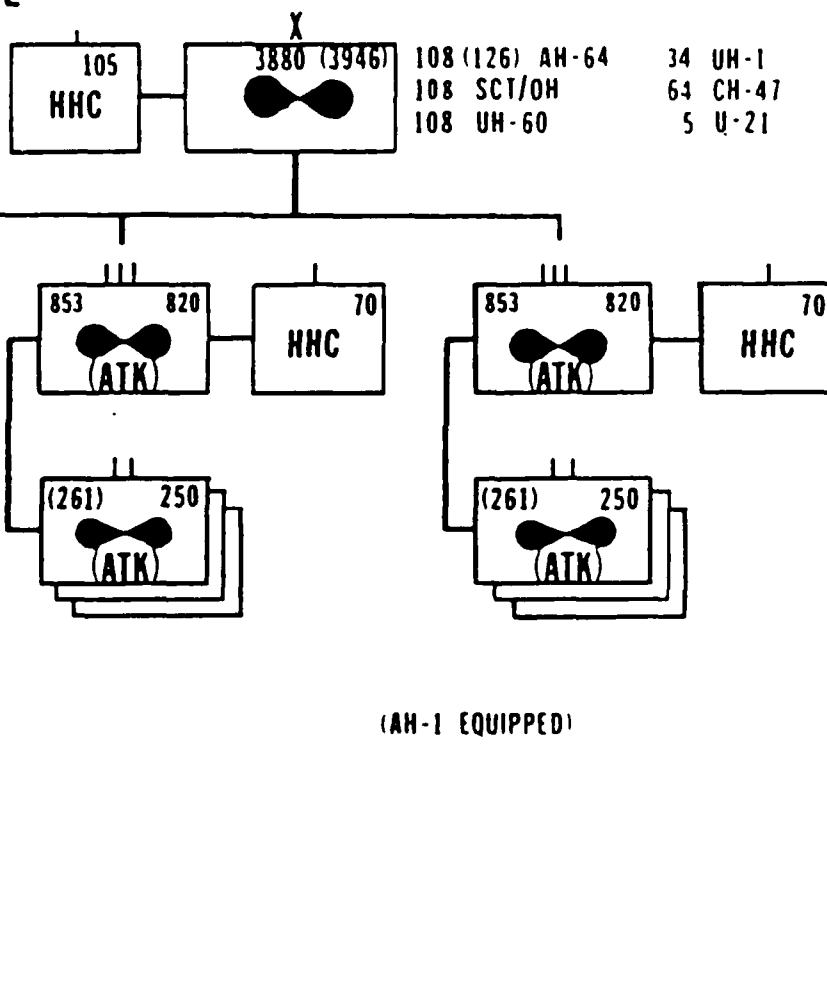
APPENDIX BLUE

"CORPS CAB (HEAVY)"



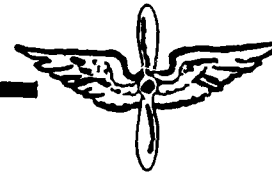
HEAVY CORPS COMBAT AVIATION BRIGADE

3880 PERSONNEL
(3946)



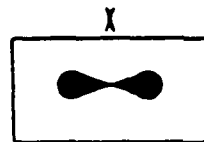
Source: US Army Aviation Center AOE Briefing Slide (1985)

"DIVISION CAB (HEAVY)"

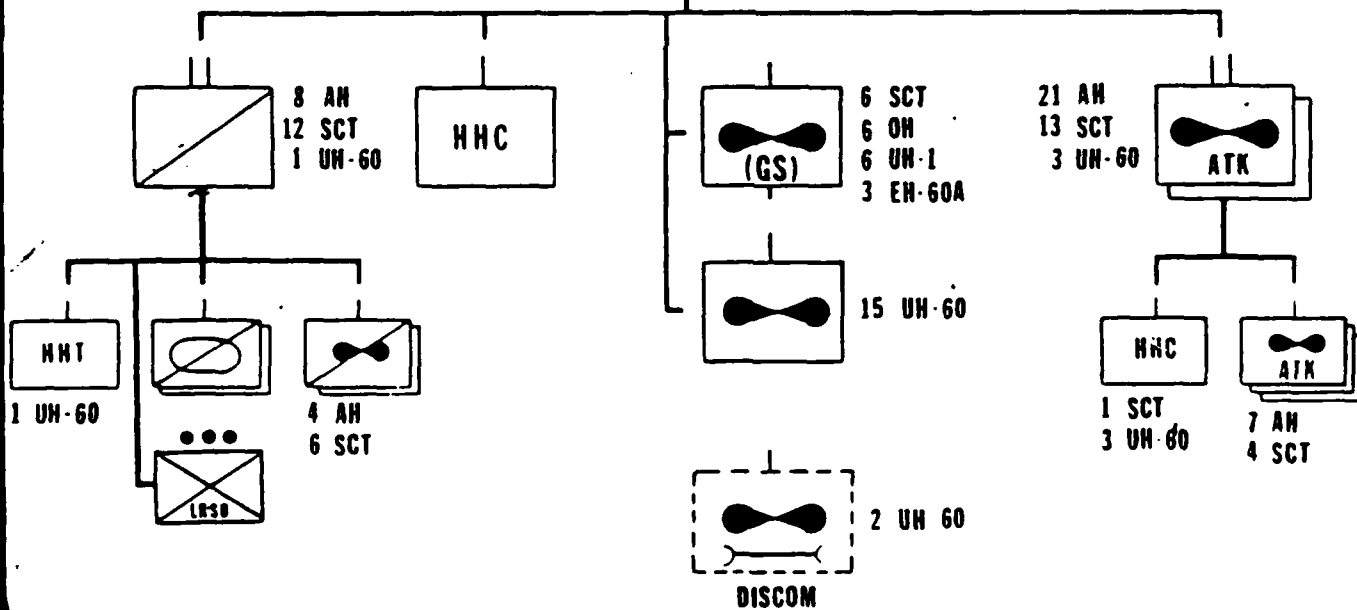


HEAVY DIVISION COMBAT AVIATION BRIGADE

1540 PERSONNEL



50 AH
44 SCT
6 OH
6 UH-1
3 EH-60A
22 UH-60
TOTAL 131 A/C



Source: US Army Aviation Center AOE Briefing Slide (1985)

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